

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

DOT 4 1987479105; 1987479106; 1987479107; 1987479108

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/mixture

Brake fluid

1.3. Details of the supplier of the safety data sheet

Company name: Robert Bosch GmbH
Street: Auf der Breit 4
Place: D-76227 Karlsruhe
Telephone: +49 721-942-0
Service Deutschland: 0 900 1 942 010-5
Responsible for the safety data sheet: sds@gbk-ingelheim.de

1.4. Emergency telephone number: INTERNATIONAL: +49 - (0) 6132 - 84463, GBK GmbH (24h - 7d/w - 365d/a)
England and Wales: NHS Direct - 0845 4647; Scotland: NHS 24 - 08454 24 24
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SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Indications of danger: Xi - Irritant

R phrases:

Irritating to eyes.

GHS classification

Hazard categories:

Serious eye damage/eye irritation: Eye Irrit. 2

Hazard Statements:

Causes serious eye irritation.

2.2. Label elements

Signal word: Warning

Pictograms: GHS07



Hazard statements

H319 Causes serious eye irritation.

Precautionary statements

P102 Keep out of reach of children.

P264 Wash hands thoroughly after handling.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P337+P313 If eye irritation persists: Get medical advice/attention.

P501 Dispose of contents/container to in accordance with local and national regulations.

2.3. Other hazards

Not known.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Chemical characterization

Mixture of the following substances with non-hazardous admixtures

**Hazardous components**

| EC No | Chemical name | Quantity |
|------------------|--|--------------|
| CAS No | Classification | |
| Index No | GHS classification | |
| REACH No | | |
| 205-592-6 | 2-[2-(2-Butoxyethoxy) ethoxy] ethanol | 24 - 25,5 % |
| 143-22-6 | Xi - Irritant R41 | |
| 603-183-00-0 | Eye Dam. 1; H318 | |
| 01-2119475107-38 | | |
| 203-872-2 | 2,2' -Oxybisethanol | 5 - 10 % |
| 111-46-6 | Xn - Harmful R22 | |
| 603-140-00-6 | Acute Tox. 4, STOT RE 2; H302 H373 | |
| 01-2119457857-21 | | |
| 203-906-6 | 2-(2-methoxyethoxy)ethanol, diethylene glycol monomethyl ether | 0,15 - 0,2 % |
| 111-77-3 | Repr. Cat. 3 R63 | |
| 603-107-00-6 | Repr. 2; H361d | |
| 01-2119475100-52 | | |

Full text of R and H phrases: see Section 16.

Further Information

Specific concentration limits

2-[2-(2-Butoxyethoxy) ethoxy] ethanol

H319: 20% =< C < 30%

H318: C >= 30%

SECTION 4: First aid measures**4.1. Description of first aid measures****General information**

Remove and wash contaminated clothing before re-use.

If you feel unwell, seek medical advice.

After inhalation

Move to fresh air in case of accidental inhalation of fumes from overheating or combustion.

After contact with skin

In case of contact with skin wash off immediately with soap and water.

Consult a doctor if skin irritation persists.

After contact with eyes

Remove contact lens.

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.

Seek medical treatment by eye specialist.

After ingestion

Do not induce vomiting.

Rinse out mouth and give plenty of water to drink.

Never give anything by mouth to an unconscious person.

Call a physician immediately.

Induce vomiting only upon the advice of a physician.

4.2. Most important symptoms and effects, both acute and delayed

Causes serious eye irritation.

Prolonged contact may irritate skin.

Prolonged contact may irritate skin.

4.3. Indication of any immediate medical attention and special treatment needed

Treat symptoms.

SECTION 5: Firefighting measures**5.1. Extinguishing media**



Suitable extinguishing media

Foam, carbon dioxide (CO₂), dry chemical, water-spray

Unsuitable extinguishing media

Full water jet.

5.2. Special hazards arising from the substance or mixture

Fire may produce:

Carbon monoxide (CO), carbon dioxide (CO₂) and nitrogen oxides (NO_x).

5.3. Advice for firefighters

In case of fire, wear suitable respiratory equipment with positive air supply.

Protective suit.

Additional information

Cool containers at risk with water spray jet.

Fire residues and contaminated firefighting water must be disposed of in accordance with the local regulations.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Use personal protective clothing.

Ensure adequate ventilation.

Attention. Hazard of skidding.

6.2. Environmental precautions

Do not discharge into the drains/surface waters/ground water.

6.3. Methods and material for containment and cleaning up

Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder). Shovel into suitable container for disposal.

6.4. Reference to other sections

Observe protective instructions (see Sections 7 and 8).

Information for disposal see section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling

Avoid contact with skin, eyes and clothing.

Ensure adequate ventilation.

Advice on protection against fire and explosion

No special protective measures against fire required.

7.2. Conditions for safe storage, including any incompatibilities

Requirements for storage rooms and vessels

To be kept tightly closed, in a cool and dry place.

Protect against direct sun radiation.

Do not use aluminium or light metal containers for warehousing.

Advice on storage compatibility

Incompatible with:

Acids and bases.

Oxidizing agents

Further information on storage conditions

Keep away from food, drink and animal feeding stuffs.

7.3. Specific end use(s)

Brake fluid

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Exposure limits (EH40)

| CAS No | Substance | ppm | mg/m ³ | fibres/ml | Category | Origin |
|----------|----------------------------|-----|-------------------|-----------|---------------|--------|
| 111-46-6 | 2,2'-Oxydiethanol | 23 | 101 | | TWA (8 h) | WEL |
| | | - | - | | STEL (15 min) | WEL |
| 111-77-3 | 2-(2-Methoxyethoxy)ethanol | 10 | 50.1 | | TWA (8 h) | WEL |
| | | - | - | | STEL (15 min) | WEL |

8.2. Exposure controls

Appropriate engineering controls

Ensure adequate ventilation, especially in confined areas.

Protective and hygiene measures

Use barrier skin cream.

Remove and wash contaminated clothing before re-use.

Wash hands before breaks and at the end of workday.

Avoid contact with skin, eyes and clothing.

When using, do not eat, drink or smoke.

Eye/face protection

Safety goggles (EN 166).

Eye wash bottle with pure water (EN 15154).

Hand protection

Short time contact: Solvent-resistant gloves (nitrile rubber).

Glove material must be impermeable and resistant against product / substance / preparation. Gloves material should comply with breakthrough times, permeation rates, and degradation.

Requirements can vary as a function of the use. Therefore it is necessary to adhere additionally to the recommendations given by the manufacturer of protective gloves.

Skin protection

Long sleeved clothing (EN 368).

Respiratory protection

No personal respiratory protective equipment normally required.

In case of insufficient ventilation wear suitable respiratory equipment (gas filter type A) (EN 141).

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

| | |
|--|-----------------------------|
| Physical state: | Liquid |
| Colour: | Amber |
| Odour: | Ethereal |
| pH-Value: | 7 - 11 |
| Initial boiling point and boiling range: | 265 °C |
| Flash point: | > 100 °C |
| Lower explosion limits: | 1,5 vol. % |
| Upper explosion limits: | 2,2 vol. % |
| Density (at 20 °C): | 1,0 - 1,1 g/cm ³ |
| Water solubility: (at 20 °C) | Miscible |
| Ignition temperature: | > 300 °C |

9.2. Other information

No data available.

SECTION 10: Stability and reactivity

10.1. Reactivity

No decomposition if suitable use.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

Reactions with acids, alkalies and oxidizing agents
Reacts with air to form peroxides.

10.4. Conditions to avoid

To avoid thermal decomposition, do not overheat.
Vapours may form explosive mixture with air.

10.5. Incompatible materials

Strong oxidizing agents
Aluminium

10.6. Hazardous decomposition products

Carbon monoxide (CO), carbon dioxide (CO₂) and nitrogen oxides (NO_x).
Hydrogen, by reaction with aluminium.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity

Based on available data, the classification criteria are not met.
Toxikologische Daten liegen keine vor.

2,2' -Oxybisethanol

LD50/oral/rat: 12565 mg/kg

LD50/dermal/rabbit: 11890 mg/kg

2-(2-Butoxyethoxy)ethanol

LD50/oral/rat: 2410 mg/kg

LD50/dermal/rabbit: 2700 mg/kg

Irritation and corrosivity

Causes serious eye irritation.

Sensitising effects

Based on available data, the classification criteria are not met.
Not classified.

STOT-single exposure

Based on available data, the classification criteria are not met.

Severe effects after repeated or prolonged exposure

Based on available data, the classification criteria are not met.

Carcinogenic/mutagenic/toxic effects for reproduction

Based on available data, the classification criteria are not met.

Carcinogenicity: Not classified.

Mutagenicity: Not classified.

Teratogenicity: Not classified.

Aspiration hazard

Based on available data, the classification criteria are not met.

Additional information on tests

Classification in compliance with the assessment procedure specified in the Regulation (EC) no 1272/2008.

Practical experience

Other observations

Prolonged contact may irritate skin.

Inhalation of vapours is irritating to the respiratory system, may cause throat pain and cough.

Ingestion causes irritation of upper respiratory system and gastrointestinal disturbance.

SECTION 12: Ecological information

12.1. Toxicity

Ecological data are not available.

2,2' -Oxybisethanol

LC50/fish: > 75 g/l (96h)

2-(2-Butoxyethoxy)ethanol
LC50/fish: 1300 mg/l (96h)

12.2. Persistence and degradability

No data available.

12.3. Bioaccumulative potential

No data available.

12.4. Mobility in soil

No data available.

12.5. Results of PBT and vPvB assessment

According to Regulation (EC) No 1907/2006 (REACH) none of the substances, contained in this product are a PBT / vPvB substance.

12.6. Other adverse effects

Low hazard to waters.

Further information

Do not flush into surface water or sanitary sewer system.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Advice on disposal

Remove in accordance with local official regulations.

Contaminated packaging

Empty containers should be taken for local recycling, recovery or waste disposal.

Contaminated packaging should be emptied as far as possible and after appropriate cleansing may be taken for reuse.

Packaging that cannot be cleaned should be disposed of like the product.

SECTION 14: Transport information

Land transport (ADR/RID); Marine transport (IMDG); Air transport (ICAO); Inland waterways transport (ADN)

14.1. UN number:

No hazardous material as defined by the transport regulations.

14.2. UN proper shipping name:

No hazardous material as defined by the transport regulations.

14.3. Transport hazard class(es):

No hazardous material as defined by the transport regulations.

14.4. Packing group:

No hazardous material as defined by the transport regulations.

14.5. Environmental hazards

No hazardous material as defined by the transport regulations.

14.6. Special precautions for user

No hazardous material as defined by the transport regulations.

14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

No hazardous material as defined by the transport regulations.

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

EU regulatory information

1999/13/EC (VOC): 0,4 %

National regulatory information

Employment restrictions: Observe employment restrictions for young people. Observe employment restrictions for child bearing mothers and nursing.

15.2. Chemical safety assessment

For this substance a chemical safety assessment has not been carried out.



SECTION 16: Other information

Abbreviations and acronyms

ADR = Accord européen relatif au transport international des marchandises Dangereuses par Route

RID = Règlement concernant le transport international ferroviaire de marchandises dangereuses

ADN = Accord européen relatif au transport international des marchandises dangereuses par voie de navigation intérieure

IMDG = International Maritime Code for Dangerous Goods

IATA/ICAO = International Air Transport Association / International Civil Aviation Organization

MARPOL = International Convention for the Prevention of Pollution from Ships

IBC = Code International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk

GHS = Globally Harmonized System of Classification and Labelling of Chemicals

REACH = Registration, Evaluation, Authorization and Restriction of Chemicals

CAS = Chemical Abstract Service

EN = European norm

ISO = International Organization for Standardization

DIN = Deutsche Industrie Norm

PBT = Persistent Bioaccumulative and Toxic

LD = Lethal dose

LC = Lethal concentration

EC = Effect concentration

IC = Median immobilisation concentration or median inhibitory concentration

Full text of R phrases referred to under Sections 2 and 3

22 Harmful if swallowed.

36 Irritating to eyes.

41 Risk of serious damage to eyes.

63 Possible risk of harm to the unborn child.

Full text of H statements referred to under Sections 2 and 3

H302 Harmful if swallowed.

H318 Causes serious eye damage.

H319 Causes serious eye irritation.

H361d Suspected of damaging the unborn child.

H373 May cause damage to organs through prolonged or repeated exposure.

Further Information

Weitere Informationen :

Data of items 4 to 8, as well as 10 to 12, do partly not refer to the use and the regular employing of the product (in this sense consult information on use and on product), but to liberation of major amounts in case of accidents and irregularities.

The information describes exclusively the safety requirements for the product(s) and is based on the present level of our knowledge.

The delivery specifications are contained in the corresponding product sheet.

This data does not constitute a guarantee for the characteristics of the product(s) as defined by the legal warranty regulations.

(n.a. = not applicable; n.d. = not determined)

(The data for the hazardous ingredients were taken respectively from the last version of the sub-contractor's safety data sheet.)